

REMARKS

Claims 1-28 are all the claims pending in the application.

Claim Rejections - Double Patenting

Claims 1-28 are rejected on the grounds of non-statutory obviousness-type double patenting over claims 1-49 of U.S. Patent No. 6,723,394 (hereinafter “U.S. ‘394”). Applicant respectfully traverses the rejection.

The Examiner’s position, at paragraph 2 on page 3 of the Non-Final Office Action mailed November 12, 2010, is based on the following assertion:

Claims 1-28 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim[s] 1-49 of U.S. Patent No. 6,723,394. Although the conflicting claims are not identical, they are not patentably distinct from each other because it would have been obvious to select another well known disc shaped molecular material in place of smectic or nematic molecular material. Please note that although for example claim 3 of the patent is directed to smectic or nematic material, claim 1 and other independent claims are not. For further guidance reader may look to column 10, lines 53-67 of the 6723394 patent to assert that disc-shaped conjugated molecules may also be used.

As a preliminary matter, Applicant notes the Examiner substantially repeats the previous basis of rejection in the Non-Final Office Action mailed December 2, 2008, and does not substantively respond to the remarks submitted in the Appeal Brief filed on August 11, 2010. Accordingly, those remarks remain applicable. Applicant repeats those remarks and supplements the remarks as necessary.

A. The Examiner Has Failed to Establish a *Prima Facie* Conclusion of Obviousness

Applicant respectfully submits that the Examiner has failed to establish a *prima facie* conclusion that claim 1 is obvious over claims 1-49 of U.S. ‘394.

First, this is because the Examiner does not set forth and apply the factual inquiries set forth in *Graham v. John Deere Co.*, as required by MPEP § 804. Instead, at best, the Examiner’s position amounts to a mere speculatory conclusion that is not supported by any objective evidence, rationale, or analysis.

Second, the Examiner does not set forth and apply the one-way obviousness inquiry as to “whether the invention defined in a claim in the application would have been anticipated by, or an obvious variation of the invention defined in a claim in the patent.”

Third, *in arguendo*, even if the Examiner’s position could somehow be interpreted as detailing the one-way obviousness inquiry, the Examiner does not determine “whether the invention defined in a claim in the application would have been anticipated by, or an obvious variation of the invention defined in a claim in the patent.” Instead, the Examiner’s position is based on the assertion that “claim 3 of the patent is directed to smectic or nematic material, claim 1 and other independent claims are not...reader may look to column 10, lines 53-67 of the 6723394 patent to assert that disc-shaped conjugated molecules may also be used.” Accordingly, at best, the Examiner’s position improperly alleges that claim 1 of the present application would have been obvious in view of “column 10, lines 53-67 of the 6723394 patent.” Mere reliance upon the teachings as a whole contained in the U.S. ‘394 patent is insufficient to render claim 1 of the present application unpatentable on the grounds of non-statutory obviousness-type double patenting. Rather, to render claim 1 of this application unpatentable, the Examiner must rely on the specific language of claims 1-49 in the ‘394 patent.

To the extent the Examiner’s position might somehow be based on the assertion that claim 1 of the present application is unpatentable over claim 3 of the ‘394 patent, Applicant addresses this below.

Accordingly, Applicant respectfully submits that the Examiner has failed to establish a *prima facie* conclusion that claim 1, as well as its dependent claims, is obvious over claims 1-49 of U.S. ‘394. To the extent independent claims 19 and 26-28 are rejected by the Examiner applying the same rationale used in rejecting claim 1, Applicant respectfully submits that the Examiner has failed to establish a *prima facie* conclusion that claims 19 and 26-28, as well their dependent claims, are obvious over claims 1-49 of U.S. ‘394 for at least reasons analogous to those discussed above regarding claim 1.

B. Claims 1, 19, and 26-28 are Nonobvious Over Claims 1-49 of U.S. ‘394

The Examiner concedes that the presently pending claims and claims 1-49 of U.S. ‘394 are not identical. Applicant agrees. However, the Examiner asserts that the presently pending claims and claims 1-49 of U.S. ‘394 are not patentably distinct from each other. Applicant respectfully disagrees.

As shown above, in support of the rejection, the Examiner asserts that “it would have been obvious to select another well known disc shaped molecular material in place of smectic or nematic molecular material...reader may look to column 10, lines 53-67 of the 6723394 patent to assert that disc-shaped conjugated molecules may also be used.”

First, Applicant respectfully submits that there is no scientific theory or literature based thesis proposed for this conclusion. Rather, the Examiner’s position arbitrarily presumes that “it would have been obvious to select another well known disc shaped molecular material in place of smectic or nematic molecular material.”

Second, although the Examiner’s double-patenting rejection makes reference to smectic or nematic molecular material, the terms “nematic” and “smectic” molecular material are not recited in claim 1 of U.S. ‘394, upon which the Examiner’s rejection is based. Rather, the terms

“nematic” and “smectic” only appear in claim 3 of the ‘394 patent. If the Examiner intends to reject the claims of this application over claim 3 of the ‘394 patent, the Examiner should affirmatively state so on the record.

Third, *in arguendo*, even if the Examiner’s rejection is based on claim 3 of the ‘394 patent, there are a number of additional technical differences between the claimed “disc-shaped” molecules and smectic or nematic polymer materials.

1. Alignment

Disc-shaped molecules arrange themselves in a direction perpendicular to the disc, whereas, the direction of alignment of smectic or nematic polymer material is parallel to the polymer chain axis. The liquid crystalline phase is very different in the two cases.

2. Process and Materials

Disc-shaped molecules have very different process conditions and very different material processing steps to smectic or nematic polymer material.

3. Electronic Effect

The electronic effect achieved for disc-shaped molecules is very different to that achieved for smectic or nematic polymer material.

Accordingly, Applicant respectfully submits that it would not have been obvious to attempt to align disc-shaped molecules simply based on a structure directed to smectic or nematic polymer material.

As a result, Applicant respectfully submits that claim 1 would not have been obvious over claims 1-49 of U.S. ‘394. To the extent independent claims 19 and 26-28 are rejected by the Examiner applying the same rationale used in rejecting claim 1, Applicant respectfully submits that claims 19 and 26-28, as well their dependent claims, also would not have been

obvious over claims 1-49 of U.S. '394 for at least reasons analogous to those discussed above regarding claim 1.

Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

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CUSTOMER NUMBER

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